Fact Sheets

SRS

P Area Reactor Seepage Basin

Background

The P Area Reactor Seepage Basin (PRSB) is located west of the P Area Reactor in the south-central part of the Savannah River Site (SRS). The PRSB consists of three unlined earthen basins. The PRSB was constructed to receive radioactively contaminated purge water from the P Reactor Disassembly Basin.

The seepage basins were used from 1957 to 1970 and again from 1978 to 1991. During that time, process purge water was released to the basin via a buried pipeline. In addition to purge water from the disassembly basin, the PRSB received very low-level radioactive wastewater from other sources. This water met the same contamination control limits as disassembly basin purge water prior to its release. In addition to tritium and low levels of other radionuclides, the purge water may have also contained trace amounts of non-radioactive organic and inorganic substances and detergents.

Environmental Concerns

In 1978, sediment and soil samples were collected from 16 locations in the basins. Radionuclides detected included cesium-137, cobalt-60, and strontium-90.

In 1998, additional samples were collected and analyzed as part of the pre-characterization effort. Soil samples were collected from the basin bottoms to 20 feet below the basin bottoms. The samples were found to be contaminated with cesium-137, cobalt-60, strontium-90, and plutonium-239/240. Most of the contamination was located in the upper 10 feet of soil. All three of the seepage basins were contaminated with cesium-137, with Basin 1 being the most contaminated and Basin 3 being the least contaminated. Additionally, subsurface soil near Basin 1 was contaminated at the site where a sewer line that fed the seepage basins had broken. Further sampling was performed in 2001 to define the nature and extent of the contamination in Basin 1 and to support the applicability of the Plug-in Record of Decision (ROD).

Environmental Actions and Plans

In September 1999, SRS issued a Plug-In ROD after approval by the U.S. Environmental Protection Agency (USEPA) and the South Carolina Department of Health and Environmental Control (SCDHEC). The Plug-in ROD selected a common remedy, in-situ stabilization with a low-permeability soil cover system, for high risk, radioactively contaminated Operable Units with similar historical uses, contaminants,

and locations. The Plug-In ROD also identified the PRSB as a candidate for the plug-in remedy.

A Technical Evaluation Report (TER) and Explanation of Significant Difference (ESD) were approved by the USEPA and SCDHEC in April 2003, validating that the PRSB meets the Plug-in ROD criteria. Remediation of the PRSB is scheduled to begin in June 2004.